

Powder River Energy Corporation***Powder River Innovation in Energy Delivery Project*****Abstract**

Powder River Energy Corporation's (PRECorp) Innovation in Energy Delivery project involves the installation of new communications infrastructure for the distribution grid throughout the entire service territory in northeastern Wyoming and southeastern Montana. Three sets of upgrades include: 1) the addition of new microwave terminals and antennas to the backhaul network between operators and the distribution grid, 2) upgrades that allow key substations to establish radio monitoring linkages with grid operators, and 3) new equipment that allows the computer platform for grid control to help integrate the communications upgrades. By increasing the ability of operators to remotely monitor and respond to grid disturbances, PRECorp expects improvements in electric reliability and reductions in operating costs and emissions from truck rolls for site visits.

Smart Grid Features

Communications infrastructure includes three sets of new equipment for upgrading the communication network across the entire distribution grid control system. The first set is for the backhaul communications network. It provides the intermediate connection between distribution circuit monitors and the grid operations center and consists of new microwave terminals, antennas, and protective equipment. PRECorp is acquiring proprietary right-of-way on these microwave channels and expects an enhanced ability to monitor and respond to distribution disturbances. The second set includes new radios, connection equipment, and backup power supplies installed at 30 key distribution substations to enhance the communications infrastructure. This radio upgrade provides significant new capabilities to monitor and more rapidly respond to outages. The third set involves the supervisory control and data acquisition (SCADA) system. New servers, workstations, and remote terminal units are used in PRECorp's control center and communications infrastructure. The SCADA upgrades improve integration and management of data from the new radio and microwave communications networks. Together these features improve grid operator abilities to identify and respond to grid disturbances and improve the overall reliability of electric delivery. In addition, the utility is targeting communications infrastructure as a method to reduce the need for truck visits to monitor and maintain the grid. Reduced truck rolls result in reductions in costs and pollutant emissions for grid operations and maintenance.

At-A-Glance**Recipient:** Powder River Energy Corporation**States:** Wyoming, Montana**NERC Region:** Western Electricity Coordination
Council**Total Budget:** \$5,109,614**Federal Share:** \$2,554,807**Project Type:** Electric Distribution Systems**Equipment**

- Substation Automation Equipment for 30 out of 53 Substations
 - SCADA Communications Network

Key Targeted Benefits

- Reduced Operating and Maintenance Costs
- Improved Electric Service Reliability and Power Quality
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

Powder River Energy Corporation *(continued)***Timeline**

Key Milestones	Target Dates
Microwave backhaul network installation start	Q1 2010
Microwave backhaul network installation complete	Q2 2011
Substation radio network installation start	Q3 2010
Substation radio network installation complete	Q4 2011
SCADA upgrade start	Q3 2010
SCADA upgrade complete	Q4 2011

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